

**CLAIM AMENDMENTS**

Claims 1-16 are pending. Claims 1-15 are amended herein.

1           1. (Currently Amended) A PPPoE (Point-to-Point Protocol over Ethernet)  
2 network system, comprising:

3           a client connected to a server through an Ethernet line;

4           said client transmitting a ~~PADI (PPPoE Active Discovery Initiation)~~ PPPoE Active  
5 Discovery Initiation (PADI) packet to said server if said client becomes disconnected  
6 from said server in a manner other than by transmission of ~~PADT (PPPoE Active~~  
7 ~~Discovery Terminate)~~ PPPoE Active Discovery Terminate (PADT) packets between said  
8 client and said server;

9           said client checking a packet received from said server, following the transmission  
10 of said a ~~PADI (PPPoE Active Discovery Initiation)~~ PPPoE Active Discovery Initiation  
11 (PADI) packet, to determine whether the packet received from said server was a ~~PADO~~  
12 ~~(PPPoE Active Discovery Offer)~~ PPPoE Active Discovery Offer (PADO) packet or a  
13 session packet;

14           said client extracting a session-ID from said packet received from said server  
15 when it is determined that the packet received from said server is ~~not the PADO (PPPoE~~  
16 ~~Active Discovery Offer)~~ the session packet;

17           said client loading said session-ID into a Session-ID field of a ~~PADT (PPPoE~~  
18 ~~Active Discovery Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet and  
19 transmitting the ~~PADT (PPPoE Active Discovery Terminate)~~ PPPoE Active Discovery

20 Terminate (PADT) packet to said server and checking for a server transmitted ~~PADT~~  
21 ~~(PPPoE Active Discovery Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet  
22 in response thereto; and

23 said client transmitting a new a ~~PADI (PPPoE Active Discovery Initiation)~~ PPPoE  
24 Active Discovery Initiation (PADI) packet to said server to reconnect said server and said  
25 client, when said client receives the server transmitted ~~PADT (PPPoE Active Discovery~~  
26 ~~Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet.

1 2. (Currently Amended) The system as set forth in claim 1, wherein said client  
2 checks a value of a Code field in said packet received from said server, when checking  
3 whether the packet received from said server is the ~~PADO (PPPoE Active Discovery~~  
4 ~~Offer)~~ PPPoE Active Discovery Offer (PADO) packet or the session packet.

1 3. (Currently Amended) The system as set forth in claim 1, further comprising:  
2 said client transmitting a ~~PADR (PPPoE Active Discovery Request)~~ PPPoE Active  
3 Discovery Request (PADR) packet to said server when the client determines that the  
4 packet received from said server is the ~~PADO (PPPoE Active Discovery Offer)~~ PPPoE  
5 Active Discovery Offer (PADO) packet and checking for a server transmitted ~~PADS~~  
6 ~~(PPPoE Active Discovery Session-confirmation)~~ PPPoE Active Discovery Session-  
7 confirmation (PADS) packet in response thereto; and

8 said client and said server beginning a PPP (Point-to-Point Protocol) session stage  
9 when the client receives the server transmitted ~~PADS (PPPoE Active Discovery Session-~~

10 ~~confirmation)~~ PPPoE Active Discovery Session-confirmation (PADS) packet.

1           4. (Currently Amended) The system as set forth in claim 3, wherein said client  
2 checks a value of a Code field in said packet received from said server, when checking  
3 whether the packet received from said server is the ~~PADO (PPPoE Active Discovery~~  
4 ~~Offer)~~ PPPoE Active Discovery Offer (PADO) packet or the session packet.

1           5. (Currently Amended) The system as set forth in claim 1, further comprising:  
2 said client also extracting a client MAC (Media Access Control) address from said  
3 packet received from said server when it is determined that the packet received from said  
4 server is ~~not the PADO (PPPoE Active Discovery Offer)~~ the session packet and storing  
5 the client MAC (Media Access Control) address and session-ID in memory; and  
6 said client loading said client MAC (Media Access Control) address as well as  
7 said session-ID into the Session-ID field of the ~~PADT (PPPoE Active Discovery~~  
8 ~~Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet being transmitted to said  
9 server.

1           6. (Currently Amended) A method of establishing reconnection between a client  
2 and a server in PPPoE (Point-to-Point Protocol over Ethernet) network system, said  
3 method comprising steps of:  
4 transmitting a ~~a PADI (PPPoE Active Discovery Initiation)~~ PPPoE Active  
5 Discovery Initiation (PADI) packet from said client to said server if said client becomes

6 disconnected from said server in a manner other than by transmission of ~~PADT (PPPoE~~  
7 ~~Active Discovery Terminate)~~ PPPoE Active Discovery Terminate (PADT) packets  
8 between said client and said server;

9 checking a next packet received from said server, following the transmission of  
10 said a ~~PADI (PPPoE Active Discovery Initiation)~~ PPPoE Active Discovery Initiation  
11 (PADI) packet, to determine whether the next packet received from said server is a ~~PADO~~  
12 ~~(PPPoE Active Discovery Offer)~~ PPPoE Active Discovery Offer (PADO) packet or a  
13 session packet;

14 extracting a session-ID from said packet received from said server when it is  
15 determined that the packet received from said server is ~~not the PADO (PPPoE Active~~  
16 ~~Discovery Offer)~~ the session packet;

17 loading said session-ID into a Session-ID field of a ~~PADT (PPPoE Active~~  
18 ~~Discovery Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet and  
19 transmitting the ~~PADT (PPPoE Active Discovery Terminate)~~ PPPoE Active Discovery  
20 Terminate (PADT) packet to said server;

21 checking for reception of a server transmitted ~~PADT (PPPoE Active Discovery~~  
22 ~~Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet; and

23 transmitting a new a ~~PADI (PPPoE Active Discovery Initiation)~~ PPPoE Active  
24 Discovery Initiation (PADI) packet to said server to reconnect said server and said client,  
25 when said client receives the server transmitted ~~PADT (PPPoE Active Discovery~~  
26 ~~Terminate)~~ PPPoE Active Discovery Terminate (PADT) packet.

1           7. (Currently Amended) The method as set forth in claim 6, further comprising  
2 steps of:

3           transmitting a ~~PADR (PPPoE Active Discovery Request)~~ PPPoE Active Discovery  
4 Request (PADR) packet to said server, when it is determined that the next packet  
5 received from said server after transmitting the a ~~PADI (PPPoE Active Discovery~~  
6 ~~Initiation)~~ PPPoE Active Discovery Initiation (PADI) packet to said server, is the ~~PADO~~  
7 ~~(PPPoE Active Discovery Offer)~~ PPPoE Active Discovery Offer (PADO) packet

8           checking for reception of a server transmitted ~~PADS (PPPoE Active Discovery~~  
9 ~~Session-confirmation)~~ PPPoE Active Discovery Session-confirmation (PADS) packet in  
10 response to the ~~PADR (PPPoE Active Discovery Request)~~ PPPoE Active Discovery  
11 Request (PADR) packet; and

12           when the client receives the server transmitted ~~PADS (PPPoE Active Discovery~~  
13 ~~Session-confirmation)~~ PPPoE Active Discovery Session-confirmation (PADS) packet,  
14 beginning a PPP (Point-to-Point Protocol) session stage between said client and said  
15 server.

1           8. (Currently Amended) The method as set forth in claim 6, said step of checking  
2 a next packet received from said server to determine whether the next packet received  
3 from said server is a ~~PADO (PPPoE Active Discovery Offer)~~ PPPoE Active Discovery  
4 Offer (PADO) packet or the session packet comprises checking a Code field of the next  
5 packet received from said server for a predetermined code.

1           9. (Currently Amended) The method as set forth in claim 7, said step of checking  
2 a next packet received from said server to determine whether the next packet received  
3 from said server is a ~~PADO (PPPoE Active Discovery Offer)~~ PPPoE Active Discovery  
4 Offer (PADO) packet or the session packet comprises checking a Code field of the next  
5 packet received from said server for a predetermined code.

1           10. (Currently Amended) The method as set forth in claim 6, further comprising:  
2 extracting a client MAC (Media Access Control) address from said packet  
3 received from said server when it is determined that the packet received from said server  
4 is ~~not the PADO (PPPoE Active Discovery Offer)~~ the session packet and storing the  
5 client MAC (Media Access Control) address and session-ID in memory; and  
6 loading said client MAC (Media Access Control) address as well as said session-  
7 ID into the Session-ID field of the ~~PADT (PPPoE Active Discovery Terminate)~~ PPPoE  
8 Active Discovery Terminate (PADT) packet being transmitted to said server.

1           11. (Currently Amended) A method of establishing reconnection between a client  
2 and a server in PPPoE (Point-to-Point Protocol over Ethernet) network system, said  
3 method comprising steps of:

4           transmitting a discovery stage initiation packet from said client to said server if  
5 said client becomes disconnected from said server in an abnormal manner during a  
6 session stage of operation between said client and said server;

7           checking a Code field of a next packet received from said server to determine

whether the received packet is a discovery stage offer packet or a session stage packet;  
transmitting a discovery stage request packet to said server, when it is determined  
that the next packet received from said server was the discovery stage offer packet  
checking for reception of a server transmitted discovery stage confirmation packet  
in response to the discovery stage request packet; and  
upon reception of the server transmitted discovery stage confirmation packet,  
beginning a new session stage between said client and said server.

12. (Currently Amended) The method as set forth in claim 11, further comprising  
steps of:

extracting a session-ID from said received packet, when it is determined that the  
packet received from said server is ~~not the discovery stage offer~~ the session stage packet;

loading said session-ID into a Session-ID field of a discovery stage terminate  
packet and transmitting the discovery stage terminate packet to said server;

checking for reception of a server transmitted discovery stage terminate packet;  
and

transmitting a new discovery stage initiation packet to said server to reconnect  
said server and said client, when said client receives the server transmitted discovery  
stage terminate packet.

13. (Currently Amended) The method as set forth in claim 11, ~~said step of~~  
~~checking the Code field checks for a predetermined value of~~ wherein the client decides

3 the packet is the discovery stage offer packet if the Code field of the received packet is  
4 set as 0x07 in said Code field and decides the packet is the session stage packet if the  
5 Code field of the received packet is set as 0x00.

1 14. (Currently Amended) The method as set forth in claim 12, ~~said step of~~  
2 ~~checking the Code field checks for a predetermined value of~~ wherein the client decides  
3 the packet is the discovery stage offer packet if the Code field of the received packet is  
4 set as 0x07 in said Code field and decides the packet is the session stage packet if the  
5 Code field of the received packet is set as 0x00.

1 15. (Currently Amended) The method as set forth in claim 12, further comprising:  
2 extracting a client MAC (Media Access Control) address from said packet  
3 received from said server when it is determined that the received packet is ~~not the~~  
4 ~~discovery stage offer~~ the session stage packet and storing the client MAC (Media Access  
5 Control) address and session-ID in memory; and  
6 loading said client MAC (Media Access Control) address as well as said session-  
7 ID into the Session-ID field of the discovery stage terminate packet being transmitted to  
8 said server.

1 16. (Original) The method as set forth in claim 11, wherein said abnormal manner  
2 is any manner other than by transmission of respective discovery stage terminate packets  
3 between said client and said server.